## Amendments to the Claims

Please cancel claims 2, 3, 16 and 19.

Please add new claims 45, 46 and 47 as shown below.

Please amend claims 3, 4, 12, 20, 35-37, and 44 as shown below.

## Listing of Claims

This listing of claims will replace all prior versions and listings of claims in the application:

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1. (Original) An artificial magnetic conductor (AMC) comprising:
a frequency selective surface (FSS) having an effective sheet capacitance which is variable to control resonant frequency of the AMC.

2. (Cancelled)

3. (Cancelled)

4. (Currently amended) The AMC of claim [[3]] 45 wherein the voltage variable capacitors comprise microelectrical-mechanical system (MEMS) based variable capacitors.

5. (Currently amended) The AMC of claim [[3]] 45 wherein the voltage variable capacitors comprise varactor diodes.

6. (Original) The AMC of claim 5 further comprising:
ballast resistors between the selected conductive patches.

7. (Original) The AMC of claim 5 further comprising:
a conductive backplane structure; and

a spacer layer separating the FSS and the conductive backplane structure, the spacer layer pierced by conductive vias electrically coupling bias signals between the conductive backplane structure and adjacent conductive patches.

8. (Original) The AMC of claim 1 wherein the FSS comprises:

a first layer of conductive patches disposed on a first side of a dielectric layer;

a second layer of conductive patches disposed on a second side of the dielectric layer, portions of the second layer of conductive patches overlapping portions of the first layer of conductive patches; and

radio frequency (RF) switches between selected patches of the first layer of conductive patches.

9. (Original) The AMC of claim 8 wherein the RF switches comprise PIN diode switches.

10. (Original) The AMC of claim 8 wherein the RF switches comprise microelectrical-mechanical system (MEMS) switches.

11. (Original) The AMC of claim 8 further comprising:

a conductive backplane structure; and

a spacer layer separating the FSS and the conductive backplane structure, the spacer layer pierced by conductive vias electrically coupling bias signals between the conductive backplane structure and adjacent conductive patches.

12. (Currently amended) An artificial magnetic conductor (AMC) comprising:

a frequency selective surface (FSS) <u>having conductive patches disposed thereon</u>;

a conductive backplane structure;

a spacer layer separating the conductive backplane structure and the FSS, the spacer layer including conductive vias extending between the conductive backplane structure and the FSS; and

voltage variable capacitive circuit elements coupled ~~with~~ between conductive patches of the FSS and responsive to one or more bias signal lines routed through the conductive backplane structure and the conductive vias.

13. (Original) The AMC of claim 12 wherein the FSS comprises a dielectric layer with a single layer of conductive patches disposed on a side of the dielectric layer.

14. (Original) The AMC of claim 13 wherein conductive patches of the layer of conductive patches are substantially square.

15. (Original) The AMC of claim 13 wherein first predetermined conductive vias are arranged to electrically couple a bias voltage line and respective adjacent conductive patches and second predetermined conductive vias are arranged to electrically couple a ground plane and respective adjacent conductive patches.

16. (Cancelled)

17. (Original) The AMC of claim 12 wherein the conductive backplane structure comprises a stripline circuit with one or more bias control signals routed in between ground planes of the stripline circuit.

18. (Original) The AMC of claim 12 wherein the conductive backplane structure comprises a stripline circuit and distributed or lumped RF bypass capacitors inherent in the design of the stripline circuit.

19. (Cancelled)

20. (Currently amended) The AMC of claim [[19]] 47 wherein a first subset of the conductive vias electrically couple a first bias signal line and associated conductive patches according to a first pattern on the one side of the dielectric layer and a second subset of the

conductive vias electrically couple a second bias signal line and associated conductive patches according to a second pattern on the one side of the dielectric layer.

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21. (Original) An artificial magnetic conductor (AMC) comprising:

a frequency selective surface (FSS) including a periodic array of conductive patches;

a spacer layer including vias extending therethrough in association with predetermined conductive patches of the FSS; and

a conducting backplane structure including two or more bias signal lines,

the AMC characterized by a unit cell including

in a first plane, a pattern of three or more conductive patches, one conductive patch electrically coupled with an associated conductive via, and voltage variable capacitive elements between selected laterally adjacent conductive patches; and

a conductive backplane segment extending in a second plane substantially parallel to a plane including the three or more conductive patches and

the associated conductive via extending from the one conductive patch to one of the two or more bias signal lines.

22. (Original) The artificial magnetic conductor (AMC) of claim 21 wherein the two or more bias signal lines include a ground line and a bias voltage line.

23. (Original) The artificial magnetic conductor (AMC) of claim 21 wherein the periodic array comprises a square lattice of four conductive patches.

24. (Original) The artificial magnetic conductor (AMC) of claim 21 wherein the voltage variable capacitive elements comprise varactor diodes.

25. (Original) The artificial magnetic conductor (AMC) of claim 24 further comprising ballast resistors coupled in parallel with the varactor diodes.

26. (Original) An artificial magnetic conductor (AMC) comprising:

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a frequency selective surface (FSS) including a periodic array of conductive patches;

a spacer layer including vias extending therethrough in association with predetermined conductive patches of the FSS; and

a conducting backplane structure including two or more bias signal lines,

the AMC characterized by a unit cell including

in a first plane, a pattern of three or more conductive patches disposed on a first side of a dielectric layer, each conductive patch electrically coupled with an associated conductive via, and radio frequency (RF) switch elements between laterally adjacent conductive patches, each conductive patch overlapping at least in part a spaced conductive patch of a plurality of spaced conductive patches disposed on a second side of the dielectric layer; and

in a second plane, a conductive backplane segment extending in a plane substantially parallel to a plane including the three or more conductive patches and the associated conductive vias extending from the each conductive patch to one of the two or more bias signal lines.

27. (Original) The AMC of claim 26 wherein the each conductive patch overlaps a spaced conductive patch which is common with horizontally adjacent and vertically adjacent unit cells of the FSS.

28. (Original) The artificial magnetic conductor (AMC) of claim 26 wherein the RF switch elements comprise PIN diodes.

29. (Original) The artificial magnetic conductor (AMC) of claim 26 wherein the RF switch elements comprise microelectrical-mechanical system (MEMS) switches.

30. (Original) A method for reconfiguring an artificial magnetic conductor (AMC) including a frequency selective surface (FSS) having a pattern of conductive patches, a conductive backplane structure and a spacer layer separating the FSS and the conductive backplane structure, the method comprising:

applying control bias signals to voltage variable capacitive elements associated with the FSS; and

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thereby, reconfiguring effective sheet capacitance of the FSS.

31. (Original) The method of claim 30 wherein applying bias control signals comprises applying the bias control signals to conductors located in the conductive backplane structure and coupled to selected conductive patches by conductors extending through the spacer layer.

32. (Original) The method of claim 30 further comprising:
tuning a resonant frequency of the AMC.

33. (Original) An artificial magnetic conductor (AMC) comprising:
a frequency selective surface (FSS) having a pattern of conductive patches;
a conductive backplane structure; and
a spacer layer separating the FSS and the conductive backplane structure, the spacer layer including conductive vias associated with some but not all patches of the pattern of conductive patches.

34. (Original) The AMC of claim 33 wherein the conductive backplane structure comprises at least one ground plane, the conductive vias being in electrical contact with the at least one ground plane.

35. (Currently Amended) The AMC of claim 33 wherein the FSS comprises:
a first set of conductive patches on one side of an FSS dielectric layer, and
a second set of conductive patches on a second side of ~~an~~ <u>the</u> FSS dielectric layer.

36. (Currently amended) The AMC of claim 35 wherein the spacer layer has conductive vias associated with ~~some or all~~ <u>some but not all</u> of only the first set of conductive patches.

37. (Currently amended) The AMC of claim 36 wherein the spacer layer has conductive vias associated with ~~some or all~~ some but not all of only the second set of conductive patches.

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38. (Original) The AMC of claim 33 wherein the conductive backplane structure comprises bias signal lines in electrical contact with at least a subset of the conductive vias.

39. (Original) The AMC of claim 38 wherein the conductive backplane structure further comprises at least one ground plane, at least a second subset of the conductive vias being in electrical contact with the at least one ground plane.

40. (Original) The AMC of claim 33 wherein the FSS comprises:
a layer of conductive patches on one side of a dielectric layer.

41. (Original) The AMC of claim 33 wherein the FSS comprises:
a layer of conductive patches on one side of a tunable dielectric layer.

42. (Original) The AMC of claim 33 wherein the FSS comprises:
a first layer of conductive patches on one side of a tunable dielectric film; and
a second layer of conductive patches on a second side of the tunable dielectric film.

43. (Original) The AMC of claim 42 wherein the spacer layer comprises:
a first set of conductive vias associated with at least some patches of the first layer of conductive patches; and
a second set of conductive vias associated with at least some patches of the second layer of conductive patches.

44. (Currently amended) A high impedance surface comprising:
a frequency selective surface (FSS) patterned with conductive patches;
a conductive ground plane; and

a layer separating the FSS and the conductive ground plane ~~backplane structure~~, the layer including a dielectric material pierced by a partial forest of conductive vias.

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45. (New) An artificial magnetic conductor (AMC) comprising:

a frequency selective surface (FSS) having a single layer of conductive patches disposed on a dielectric layer and an effective sheet capacitance which is variable to control resonant frequency of the AMC; and

voltage variable capacitors between selected conductive patches.

46. (New) An artificial magnetic conductor (AMC) comprising:

a frequency selective surface (FSS);

a conductive backplane structure;

a spacer layer separating the conductive backplane structure and the FSS, the spacer layer including conductive vias extending between the conductive backplane structure and the FSS;

voltage variable capacitive circuit elements coupled with the FSS and responsive to bias signals on one or more bias signal lines routed through the conductive backplane structure and the conductive vias; and

ballast resistors coupled in parallel with the voltage variable capacitive circuit elements.

47. (New) An artificial magnetic conductor (AMC) comprising:

a frequency selective surface (FSS) including a dielectric layer with a first layer of conductive patches disposed on one side of the dielectric layer and a second layer of conductive patches disposed on a second side of the dielectric layer to at least partially overlap conductive patches of the first layer of conductive patches;

a conductive backplane structure;

a spacer layer separating the conductive backplane structure and the FSS, the spacer layer including conductive vias extending between the conductive backplane structure and the FSS; and

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voltage variable capacitive circuit elements coupled with the FSS and responsive to one or more bias signal lines routed through the conductive backplane structure and the conductive vias.